

Appln No. 10/517,901
Amdt date September 5, 2008
Reply to Office action of June 16, 2008

REMARKS/ARGUMENTS

Claims 1-5, 8, 10, 12, 14, 16-23, and 31-33 remain in this application. In the June 16, 2008 Office action, the examiner objected to claims 31 and 33 for being of improper dependent form. In response, applicant has amended claims 31 and 33 to correct any deficiencies. Applicant has also amended claim 8 to include meadowfoam oil as a possible thermal stabilizer. Support for this amendment is found in the specification at page 20, line 27 to page 21, line 2.

The examiner further rejected claims 2, 12, 14, and 21 as obvious over Gambini et al. U.S. Patent 5,593,463. Gambini et al. are cited for teaching a gasoline fuel additives can contain "minor amounts of hydrocarbon oligomers which contain some olefinic unsaturation" at columns 1-2. Gambini et al. are further cited for teaching the inclusion of oxidation inhibiting compounds. However, rather than teaching any benefits from the use of unsaturated oligomers as a fuel additive, Gambini et al. actually teach away from the use of olefinic compounds by teaching that any unsaturated oligomers are to be *hydrogenated* so as to be "*almost totally saturated*." See Gambini et al., column 2, lines 9-14. Moreover, it is well recognized that olefinic compounds are undesirable in gasolines and other fuels for internal combustion engines as such olefinic compounds tend to form deposits on engine components. Gambini et al. specifically point out the various problems that can result from such engine deposits. See Gambini et al, column 1, lines 7-30. Nevertheless, while applicant is of the opinion that original claims 2, 12, 14, and 21 are allowable over Gambini et al., in an effort to expedite allowance of the present application, applicant has amended independent claims 2 and 21 to cancel the inclusion of "long chain olefinic compounds," and instead claim a preferred embodiment of the invention which includes "carotenes, carotenoids, carotene derivatives, carotene precursors, carotenoid derivatives, carotenoid precursors, and mixtures thereof." Nowhere do Gambini et al. teach or suggest the use of such materials as fuel additives. Claims 2, 12, 14, and 21 are allowable.

The examiner still further rejects all pending claims as unpatentable over Jordan U.S. Patent No. 5,826,369 in combination with Reid U.S. Patent 4,981,495 or Reid U.S. Patent

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4,941,968. According to the examiner, Jordan is cited for teaching the use of beta-carotene as a fuel additive while Reid is cited for teaching the use of an alkyl 1,2-dihydroquinoline compound as a stabilizing compound for fuels. As to independent claims 1 and 20, these claims very specifically recite a combination of beta-carotene and 2,2,4-trimethyl-6-ethoxy-1,2-dihydroquinoline as a fuel additive. Applicant submits that there are thousands of known fuel additives which can be used in a virtually infinite number of combinations, and therefore, absent some suggestion to combine these two very specific compounds, such a combination would not be obvious. Moreover, applicant has discovered that the combination of these two very specific compounds provides a synergism that yields surprising and unexpected results. See the discussion of the examples in the specification at page 36, line 11 to page 40, line 18 for a discussion of the benefits of the claimed combination over prior art additives, and in particular, see the discussion at page 38, lines 20-23, and page 4, lines 12-18. The examiner is reminded that in she cannot rely on mere conclusory statements of obviousness, but rather, must explicitly describe the reasons for the rejection. See *KSR International Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d 1385, 1396 (U.S. 2007) ("KSR"). Moreover, in a case such as this where applicant has demonstrated unexpected results, such secondary considerations will rebut a *prima facie* case of obviousness. See *KSR*, Id. at 1395, affirming the importance of the factors set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966) and citing its companion case, *U.S. v. Adams*, 383 U.S. 39 (1966) for its holding that a claim is not obvious where an unexpected result is demonstrated. Applicant submits that independent claims 1 and 20 are allowable over the cited art, as are dependent claims 16-18, 31, and 32 which depend from claim 1, and dependent claims 22, 23, and 33 which depend from claim 20.


Turning to independent claims 2 and 21, these claims specifically recite the combination of "a first compound selected from carotenes, carotenoids, carotene derivatives, carotene precursors, carotenoid derivatives, carotenoid precursors, and mixtures thereof" and "a stabilizing compound that inhibits oxidation of the first compound." As mentioned above, the examiner relies on Jordan for teaching the use of beta-carotene as a fuel additive, and Reid for teaching that alkyl 1,2-dihydroquinoline compounds can be used as stabilizing compounds for

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fuels. However, rather than reciting the inclusion of a compound for stabilizing the fuel itself, independent claims 2 and 21 specifically recite the inclusion of a compound for inhibiting oxidation "*of the first compound.*" Applicant submits that where the goal is to inhibit oxidation of a very specific additive such as a carotene compound, one of ordinary skill in the art would not merely look to general fuel stabilizing compounds. Consequently, there is absolutely no motivation to combine the references to provide a two-component fuel additive where the claimed purpose of the second component is to inhibit oxidation of the first component. Applicant submits that independent claims 2 and 21 are allowable over the cited art. Furthermore, dependent claims 3-5, 8, 10, 12, 14, and 19 which depend from independent claim 2 are similarly allowable over the cited art.

Claims 1-5, 8, 10, 12, 14, 16-23, and 31-33 remain in this application and applicant submits that all remaining claims are allowable over the cited art. However, if there are any remaining issues which can best be addressed by telephone, the examiner is asked to contact applicant's counsel at the number below.

Respectfully submitted,
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